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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Dieter Renner

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EXAMINER

CAILLOUET, CHRISTOPHER C

ART UNIT

PAPER NUMBER

1745

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03/09/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,949	Applicant(s) RENNER ET AL.	
	Examiner CHRISTOPHER C. CAILLOUET	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-20 and 23-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-20 and 23-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed February 28, 2011 has been entered. Claims 17, 30, 35 and 39 were amended.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 17-20, 24-28 and 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (US 20010010423) in view of Storey et al. (US 5518269), Yasuda et al. (US 6337461) and Gray et al. (US 20020153710).

As to claims 17, 18, 20 and 35-37, Bauer et al. (Bauer) discloses a process for preweakening the inside of an automotive trim piece (vehicle interior component) cover using a laser (Abstract). Bauer discloses that a laser partially removes material from a textile component to form a plurality of holes, thus defining a weakening zone in the material (Fig. 13; paragraphs 50 and 94) (claim 18). Bauer discloses that the weakening zone allows for the creation of a deployment door for an airbag device (paragraph 34). Bauer discloses component (fabric layer (118), foam layer (120) and support layer (116)) is laser treated from the back side (Fig. 16) (claims 20 and 37), it is inherent that the holes in the foam layer are formed before the holes in the fabric layer of the component.

Bauer fails to disclose that the spacing of the holes is 0.6 to 0.75 times the spacing between the threads of the textile surface. Storey et al. (Storey) discloses a

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method of making airbags with dynamic burn vents (Abstract). Storey discloses that a dynamic vent (28) is formed into the fabric of an air bag cushion (12) (Fig. 1-3; column 4, lines 45-61). Storey further discloses that the strength of the fabric in which the dynamic vent is made can be reduced by creating microholes or micropores (34) in the fabric to form a tear line (column 5, lines 10-23). Micropores are used to make a fabric slightly more permeable by adjusting the micropore size and spacing (Id.). Storey further discloses that the number of threads per inch as well as the size of the thread affects the tear strength of the fabric (column 5, line 65 - column 6 line 9). Storey discloses that the fabric may have a thread count of 50 threads per inch (column 6, lines 2-4).

Yasuda et al. (Yasuda) discloses a known method of making micro perforations into airbag covers (Abstract). Yasuda discloses that when making a tear line, it is desirable to form microperforations every 0.2-5.0 mm along a predetermined cut path (column 4, lines 1-13). Yasuda further discloses that the less frequent microperforation can adversely affect the tearing performance of a trim piece (Id.).

Therefore, it would have been obvious to one of ordinary skill in the art to space the holes in accordance with the desired tensile strength of substrate for proper airbag deployment. As seen above Storey and Yasuda teach that the choice of fabric (thread size), the thread count/spacing of said fabric and the spacing/pitch of the microperforations are result effective variables for the tear strength of a material along a tear line. Depending on the choice of the above variables, during optimization of the spacing of said holes in the substrate to match the required tear strength of the system,

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it's expected that the spacing of the holes would fall within the range of 0.6 to 0.75 times the spacing between the threads of the surfaces of some of the textiles, as claimed.

Discovery of optimum value of result effective variable in known process is ordinarily within skill of art. In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

The method of the above references as combined would result in utilizing a slightly permeable material with a thread count of 50 per inch would result in thread center to thread center spacing of 1.967mm (50/25.4mm). Multiplying the above spacing by Applicant's claimed range of 0.6 to 0.75 would result in a spacing of 1.184 to 1.477 mm, which falls into Yasuda's spacing of 0.2-5.0 mm.

The method of the above references as combined fails to disclose a method wherein the weakening zone is formed in the supporting element in a separate step or prior to laminating the foam and fabric layers (36) so that the holes in the foam and fabric layers substantially coincide with those of the supporting element upon lamination. It is the position of the Examiner that forming perforations in the different elements and thereafter aligning said perforations for proper registration for the element is well known in the art and would have been obvious to one of ordinary skill at the time of the invention. Gray discloses a method of making airbag panels comprising of a substrate layer (8), a foam layer (6), and an outer shell layer (4) (Fig. 2). Gray further discloses that apertures (36) may be formed in the substrate (8) by laser prior to bonding said substrate to the foam (6) and outer shell (4) layers (paragraph 118). Gray further discloses that the apertures (36) are sealed with a tape prior to lamination (paragraph 117). Gray teaches that the apertures (36) may also remain sealed by

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forming said apertures as closed sections that are laser cut open after bonding said substrate to the foam layer (paragraph 118). Gray teaches foam is prevented from penetrating the cavity below the substrate by forming and sealing the apertures prior to lamination (Id.). It would have been obvious for one of ordinary skill in the art to modify the method of the above references as combined to form and cover holes on the substrate prior to lamination to the foam layer, and would have been motivated to do so because Gray teaches such a step prevents unwanted foam in the cavity below the substrate.

Furthermore, it would have been obvious for one of ordinary skill in the art to incorporate a known successful method of producing an airbag, such as forming the tear lines in the different layers in separate steps prior to lamination of layers into a unitary pieces as disclosed by Gray et al., because such a modification would have been within his technical grasp.

As to claim 19, the method of claim 17 is taught as seen above. Yasuda further discloses that the microholes/perforations formed by the pulse laser results in an entry opening having a first dimension and an exit opening having a second dimension smaller than the first dimension (Fig. 4).

As to claim 23, the method of claim 17 is taught as seen above. Storey further discloses that the perforations are disposed in a linear arrangement (Figure 2a).

As to claim 24, the method of claim 17 is taught as seen above. Storey discloses that the holes are introduced at an angle, 90°, with respect to the surface of the textile surface structure (Figure 3).

As to claims 25 and 26, the method of claim 17 is taught as seen above. The above references as combined fail to disclose making holes in the fabric (outer shell) layer at an angle of 20 to 45 degrees or more specifically at an angle of 30 degrees relative to the surface of the fabric layer. Gray discloses that angled apertures (69) are formed into the outer shell layer (11) so that the apertures in the outer layer may be offset from the apertures (36) in the support layer (17) (Fig. 16). Gray teaches that this angled offset is necessary in order to form a tear pathway with both a horizontal and vertical vector component, whereas if there is not offset, the tear pathway only has a vertical vector component (paragraph 140). Gray teaches that the apertures are preferably formed at angles of 28 to 58 degrees (foam thickness of 8mm with offset of 5mm and 15 mm respectively) (paragraph 141-143). It would have been obvious for one of ordinary skill in the art to modify the method of the above references as combined to include creation of apertures in the outer shell/fabric layer at an angle of 30 degrees, because Gray teaches that angled apertures are necessary in order to create tear pathways with both a horizontal and vertical component vector.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method of creating angled apertures in the outer layer of Gray et al. in the method taught by the above references as combined because one of ordinary skill in the art would have been able to carry out such a substitution to achieve the predictable result of creating an airbag cover with tear seams having both a horizontal and vertical component vectors. "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield

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predictable results.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007).

As to claim 27, Storey discloses a process for preweakening a section of a vehicle interior component (Fig. 1).

As to claim 28, the method of claim 27 is taught as seen above. Storey discloses a process for preweakening a section of a vehicle interior component in the form of a seat (Fig. 8).

As to claim 38, the method of claim 35 is taught as seen above. As stated above, Bauer discloses that apertures are made in the supporting element by laser (Fig. 16).

Claims 39 and 40 are rejected for the same reasons that claims 17 and 24-26 are rejected above.

4. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (US 20010010423), Storey et al. (US 5518269), Yasuda et al. (US 6337461) and Gray et al. (US 20020153710) as applied to claim 17 above, and further in view of Kim (US 20020047252).

The above references as combined fail to disclose that the fabric of the above references as combined may be used as a component for an item of clothing for motorcyclists with integrated airbag. Kim discloses jacket with deployable airbags for safety in an auto collision (Abstract; Figure 7). Kim discloses that upon detection of a collision, the jacket will deploy airbags from within the jacket (paragraph 14; Fig. 6).

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Kim further discloses that the jacket may be made of leather, vinyl, or other fabrics such that the jacket is functional and comfortable (paragraph 36). Insofar as Kim and the above references as combined are analogous arts from the same field of endeavor of airbag components and their production, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilize the tear line formation technique of the above references as combined to produce the tear lines for airbag deployment in the jacket of Kim because one of ordinary skill would have recognized the advantage of a jacket component with hidden airbag tear lines.

5. Claims 30-32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (US 20010010423) in view of Storey et al. (US 5518269) and Yasuda et al. (US 6337461).

Bauer et al. (Bauer) discloses a process for preweakening the inside of an automotive trim piece (vehicle interior component) cover using a laser (Abstract). Bauer discloses that a laser partially removes material from a textile component to form a plurality of holes, thus defining a weakening zone in the material (Fig. 13; paragraphs 50 and 94). Bauer fails to disclose that the spacing of the holes is 0.6 to 0.75 times the spacing between the threads of the textile surface.

Storey et al. (Storey) discloses a method of making airbags with dynamic burn vents (Abstract). Storey discloses that a dynamic vent (28) is formed into the fabric of an air bag cushion (12) (Fig. 1-3; column 4, lines 45-61). Storey further discloses that the strength of the fabric in which the dynamic vent is made can be reduced by creating

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microholes or micropores (34) in the fabric to form a tear line (column 5, lines 10-23).

Micropores are used to make a fabric slightly more permeable by adjusting the micropore size and spacing (Id.). Storey further discloses that the number of threads per inch as well as the size of the thread affects the tear strength of the fabric (column 5, line 65 - column 6 line 9). Storey discloses that the fabric may have a thread count of 50 threads per inch (column 6, lines 2-4).

Yasuda et al. (Yasuda) discloses a known method of making micro perforations into airbag covers (Abstract). Yasuda discloses that when making a tear line, it is desirable to form microperforations every 0.2-5.0 mm along a predetermined cut path (column 4, lines 1-13). Yasuda further discloses that the less frequent microperforation can adversely affect the tearing performance of a trim piece (Id.).

Therefore, it would have been obvious to one of ordinary skill in the art to space the holes in accordance with the desired tensile strength of substrate for proper airbag deployment. Depending on the choice of fabric (thread size), the thread count/spacing of said fabric, the tear strength of the system, during optimization of the spacing of said holes in the substrate to match the required tear strength of the system, it's expected that the spacing of the holes would fall within the range of 0.6 to 0.75 times the spacing between the threads of the surfaces of some of the textiles, as claimed. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art.* In re Boesch, CCPA 1980, 617 F.2d 272, 205 USPQ215.

The method of the above references as combined would result in utilizing a slightly permeable material with a thread count of 50 per inch would result in thread

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center to thread center spacing of 1.967mm (50/25.4mm). Multiplying the above spacing by Applicant's claimed range of 0.6 to 0.75 would result in a spacing of 1.184 to 1.477 mm, which falls into Yasuda's spacing of 0.2-5.0 mm.

As to claim 31, since the component of the above references as combined is laser treated from the back side, it is inherent that the holes in the foam layer are formed before the holes in the fabric layer of the component.

As to claim 32, the method of claim 30 is taught as seen above. Bauer further discloses bonding a supporting element (108, 116) to the foam and textile layers (Fig. 10, 16; paragraphs 90-91 and 99-102).

As to claim 34, the method of claim 32 is taught as seen above. Bauer discloses that a weakening zone is formed in the supporting element after joining the foam and textile layers to the supporting element (Fig. 16).

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer et al. (US 20010010423), Storey et al. (US 5518269) and Yasuda et al. (US 6337461) as applied to claim 30 above, and further in view of Gray et al. (US 20020153710).

The method of the above references as combined fails to disclose a method wherein the weakening zone is formed in the supporting element prior to laminating the foam and fabric layers. It is the position of the Examiner that forming perforations in the different elements and thereafter aligning said perforations for proper registration for the element is well known in the art and would have been obvious to one of ordinary skill at the time of the invention. Gray discloses a method of making airbag panels comprising

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of a substrate layer (8), a foam layer (6), and an outer shell layer (4) (Fig. 2). Gray further discloses that apertures (36) may be formed in the substrate (8) by laser prior to bonding said substrate to the foam (6) and outer shell (4) layers (paragraph 118). Gray further discloses that the apertures (36) are sealed with a tape prior to lamination (paragraph 117). Gray teaches foam is prevented from penetrating the cavity below the substrate by forming and sealing the apertures prior to lamination (Id.). It would have been obvious for one of ordinary skill in the art to modify the method of the above references as combined to form and cover holes on the substrate prior to lamination to the foam layer, and would have been motivated to do so because Gray teaches such a step prevents unwanted foam in the cavity below the substrate.

Furthermore, it would have been obvious for one of ordinary skill in the art to incorporate a known successful method of producing an airbag, such as forming the tear lines in the different layers in separate steps prior to lamination of layers into a unitary pieces as disclosed by Gray et al., because such a modification would have been within his technical grasp.

Response to Arguments

7. Applicants' arguments filed February 28, 2011 have been fully considered but they are not persuasive. Examiner will address only those arguments pertinent to the rejections above.

In response to Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to Applicants' argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Examiner would point out that hindsight was not used to make the above rejection; Examiner simply looked at what would likely happen during regular manufacturing, as stated in the rejection above, and it read upon Applicant's claimed limitations.

Applicant argues on page 9 of the Remarks that Storey expressly teaches away from forming an area of catastrophic mechanical failure in a fabric, because otherwise any airbag formed with such an area would collapse. Examiner is not persuaded by Applicant's contention/reasoning because as seen in Fig. 5 of Storey, micro-perforations are made into the material so that sections with said micro-perforations experience catastrophic mechanical failure when a predetermined amount of force is applied to said areas.

Applicants argue on page 10 that they conceived the subject matter of incremental spacing of holes to be different than spacing of threads so that the said holes are rendered ineffective by coinciding with thread interspaces, thus preventing the weakening of the textile surface structure. Examiner would point out to Applicant that this does not necessarily guarantee the prevention of the holes from coinciding with the spaces in the fabric since a fabric with relatively large spaces compared to the size of the threads could be used, thus possibly resulting in the laser passing between the threads without making any contact and weakening the fabric.

Applicants argue on page 10 of the Remarks that the following errors/unsupported assumptions were made when calculating the center to center distance in a fabric having a thread count of 50 threads per inch: that there was no space between the threads of Storey et al., the diameter size of the threads are constant throughout the sample, and that there is no distortion between adjacent threads. Examiner points out that the assumptions are made for calculating the average distance between the threads of a fabric with little to no space between adjacent threads, i.e. an impermeable fabric or one with low air permeability. Storey discloses that such fabrics are used when making airbags and airbag components (column 5, lines 10-33). Thus, the method of the above references as combined utilizing an impermeable/slightly impermeable fabric of Storey et al. reads upon Applicant's claimed limitations.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER C. CAILLOUET whose telephone number is (571)270-3968. The examiner can normally be reached on Monday - Thursday; 9:30am-4:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher C Caillouet/
Examiner, Art Unit 1745

/Mark A Osele/
Primary Examiner, Art Unit 1745
March 4, 2011